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WORKING PAPER

HOUSEHOLD CROP-DIVERSITY AND HOUSEHOLD FOOD SECURITY / SELF SUFFICIENCY/ACCESS TO NATURAL RESOURCES

BY

AUGUSTINE MASOMERA

WORKING PAPER AEE/11/98

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SUFFICIENCY/ACCESS TO NATURAL RESOURCES

1.0 Introduction

This paper discusses household food security, self-sufficiency, access to natural resources as a source of food and crop-diversity. The analysis is based on a survey that was carried out in four communal areas: Svosve, Mhondoro-Ngezi, Chiduku and Buhera. The data for Svosve and Mhondoro-Ngezi were collected in 1996 and that for Chiduku and Buhera were collected in early 1997. The data on crop production were collected for Buhera and Chiduku only.

2.0 Objectives of the paper

The objective of this paper is to determine whether communal area households in Zimbabwe are having enough grain and also assess access of the households to food from natural resources.

The specific objectives are:

i. To determine whether households have enough grain to last until the next harvest and if not whether they have enough money to buy the grain.

ii. To determine the proportion of farmers who grow some crops and average number of varieties grown per crop.

iii. To determine the proportion of respondents who consume some wild small animals, fruits and vegetables.

2.1 Hypotheses

i. Most communal households in Zimbabwe are grain insecure.

ii. Most crops except crops like maize, groundnuts and rapoko are grown by few farmers.

iii. Most communal households have access to natural resources as food.

3.0 Literature review

Household food security can be defined as availability and access to food by a household to lead an active normal life. The household can have the food from own production or can have access to food through purchasing. This paper focuses on rural household food security.

A household is self sufficient in relation to crop production if it is able to produce enough for its needs.

Zimbabwe is characterized by chronic food insecurity at household level whilst the country is generally self-sufficient at national level (Rukuni et al, 1994; Government of Zimbabwe, 1996). Whilst the country is food secure in terms of national requirements, malnutrition and household food insecurity are serious problems. About 30% of the children under the age of five are chronically malnourished. According to Rukuni et al (1994), the largest number

The country has largely been successful in addressing food availability through domestic production and storage. However for food security to be achieved households should have access to the food. Food security is guaranteed when each and every household has access to an adequate diet necessary for a healthy and active life throughout the year (Government of Zimbabwe, 1996).

3.1 Some indicators of food security

Figures on malnutrition in the population can help indicate the level of food insecurity. A high rate of malnutrition shows that there is a lack of access to food or proper nutrition.

Some indicators which can also be used include proxies of consumption like grain available per household member.

4.0 Analytical frame work

Achieving food security through attainment of food self-sufficiency has some implications on other goals. Increasing food production through policies such as agricultural price controls and input subsidies is likely to have negative effects on efficiency. However, achieving food security through own production and trade implies that stable trading mechanisms must be in place. In many cases , food self-sufficiency, economic efficiency and natural resource sustainability are conflicting goals.

In this paper indications on access to food are shown by own production and the potential to purchase the food. The food security discussed in the paper is mainly grain security since other sources of nutrients to ensure a balanced diet are not taken into account.

Grain self-sufficiency is shown by whether the household run out of grain before the next harvest or not. If the household does not run out of grain from own production, then it is self-sufficient. If the household runs out of grain but has enough to buy the grain, then it is grain secure, assuming that the grain is available. Once a household is grain self-sufficient, it implies that it is grain secure in most cases..

In this paper the number of crops or/and varieties grown are used to give some measure of crop diversity. However, it would add more weight if the area under different crops and varieties were included in the analysis. The paper does not attempt to relate crop diversity to household food security.

Access to small wild animals, wild vegetables and wild fruits is assessed by looking at the percentage of the respondents who harvest these resources.

3.0 Crop diversity and food security

50% of the farmers in Chiduku and Buhera are growing as many crop varieties as they would like. In Svosve and Mhondoro-Ngezi most of the farmers are not.

The main reason for not growing all the desired varieties is the high price of seeds. Some farmers also think that the soils are not suitable for some of the varieties and the prevailing weather conditions are not suitable for some varieties. Other reasons given are too much pests, many diseases, poor germination, unavailability of seeds and seed sources are too far away.

Out of the 120 farmers interviewed in Svosve communal lands, 105 grow maize. The average number of maize varieties grown is two. The second crop grown by many farmers is groundnuts. Other crops which are grown by a significant number of farmers are rapoko and fruit trees. Although crops like sorghum, pearl millet, soya beans and cassava are also grown in Svosve, very few farmers grow these crops (Table 1). Rice and cotton are not grown in the area.

The number of crop varieties for the crops grown is mostly two or one except for fruit trees and vegetables in all the four communal areas.

Table 1: Average number of crop varieties grown in Svosve communal lands

Crop	No. of varieties grown now	No. of varieties grown when started farming
Maize	2 (105)	2
Sorghum	1 (3)	0
Millet	1 (1)	1
Rapoko	1 (36)	1
Groundnuts	2 (58)	2
Sunflower	1 (14)	1
Roundnuts	1 (21)	1
Soya beans	1 (1)	0
Rice	0	0
Fruit trees	8 (55)	3
Vegetables	3 (20)	3
Cow peas	1 (22)	1
Cassava	1 (3)	1
Beans	2 (26)	2
Sweet potatoes	2 (17)	2
Cotton	0	0

Note: The number in brackets is n.

Growing of maize as a cash crop has reduced the number of crops grown. On average each household consume 22.9kgs of grain per week. Most households run out of grain from own production before next harvest. They supplement mainly by buying and grain from the drought relief programme. However a big number of the households do not have enough money to buy the required additional grain.

Table 2: Average number of crop varieties grown in Mhondoro-Ngezi communal lands

Crop	No. of varieties grown	No. of varieties grown when started farming
Maize	2 (104)	2
Sorghum	0	0
Millet	1 (1)	1
Rapoko	1 (7)	1
Groundnuts	2 (75)	2
Sunflower	1 (2)	0
Roundnuts	1 (2)	0
Soya beans	0	0
Rice	0	0
Fruit trees	8 (36)	1
Vegetables	2 (10)	2
Cow peas	1 (2)	1
Cassava	0	0
Beans	2 (3)	1
Sweet potatoes	0	0
Cotton	0	0

Note : The number in brackets is n.

Table 2 shows crops grown in Mhondoro-Ngezi and the average number of varieties grown for each crop. Maize and groundnuts are grown by most farmers in the area. Crops like cotton, sweet potatoes, cassava, rice, soya beans and sorghum are not grown in the area.

Growing maize as cash crop did not reduce number of crops grown nor the area under other crops. About 22.6kgs of grain are consumed per week. 54 % of the households run out of grain from own production before next harvest. Most of the households buy grain to supplement and very few farmers benefit from the drought relief programme. Most households have enough money to buy additional grain.

Table 3: Average number of crop varieties grown in Chiduku communal lands

Crop	No. of varieties grown	No. of varieties grown when started farming
Maize	2 (198)	2
Sorghum	1 (42)	1
Millet	1 (12)	1
Rapoko	2 (98)	1
Groundnuts	1 (166)	1
Sunflower	1 (89)	1
Roundnuts	1 (159)	1
Soya beans	2 (3)	2
Rice	1 (18)	1
Fruit trees	4 (77)	3
Vegetables	4 (140)	3
Cow peas	2 (66)	2
Cassava	1 (8)	2
Beans	2 (87)	2
Sweet potatoes	2 (82)	2
Cotton	1 (2)	1

Note: Number in brackets is n.

Almost all the farmers in Chiduku grow maize. Other crops which are grown by [illegible] groundnuts, roundnuts, vegetables, rapoko, sunflower and beans. Crops like cotton, millet, cassava and beans are also grown although not widespread (Table 3).

Growing maize as cash crop did not reduce number of crops grown. Each household consumes about 22.2 kgs of grain per week. Only 38% run out of grain before next harvest and they mainly buy to supplement. The households have enough money to buy.

Table 4: Average number of crop varieties grown in Buhera communal lands

Crop	No. of varieties grown	No. of varieties grown when started farming
Maize	2 (292)	2
Sorghum	1 (105)	1
Millet	1 (109)	1
Rapoko	1 (173)	1
Groundnuts	1 (283)	1
Sunflower	1 (145)	1
Roundnuts	1 (272)	2
Soya beans	1 (9)	1
Rice	1 (43)	1
Fruit trees	3 (132)	2
Vegetables	3 (243)	3
Cow peas	2 (89)	1
Cassava	1 (8)	1
Beans	1 (120)	1
Sweet potatoes	2 (108)	1
Cotton	2 (6)	1

Note: The number in brackets is n.

In Buhera (Table 4), cotton, rice and cassava are grown by few farmers. Just like for the other three communal lands maize is the dominant crop followed by groundnuts. However in Buhera crops like roundnuts, rapoko and vegetables are also grown by a significant number of farmers.

About 21.2kgs of grain are consumed by a household per week.. 60% run out of grain from own production before the next harvest. Most buy and few beg for the grain. Most of the households do not have enough money to buy grain to supplement that from their own production.

6.0 Crop production

In Chiduku the average area under marketed crops has not been changing significantly except for beans since 1989 (Tables 9A-9H). The average output has being fluctuating over the years and is lowest for the 1992 and 1991 season for most crops. The output decreased during these two seasons most likely because of the drought. Quantities sold follow a trend which is almost similar to output. As output increases quantity sold also increases.

Table 10 shows mean area under non-marketed crops and average output by year [illegible]

The average area under sugar-cane and that under pumpkins has been decreasing over years except for the 1990 season. The area under millet has been fluctuating. Average output has generally remained constant for cow peas and sweet potatoes, fluctuating for pumpkins, and increasing for sugar cane and millet.

The average area under different crops, output and average quantities sold in Buhera by year are shown in Tables 11A to 11G. The average area under the various crops has not being changing significantly except for sorghum which decreased significantly when compared to 1989. The area remained constant for beans. Output and quantity sold have also been fluctuating and are lowest for the 1991 and 1992 agricultural seasons for most crops.

The area under non-marketed crops has also not been changing greatly for Buhera. Output has also been fluctuating over the years (Table 12).

7.0 Access to small wild animals, wild vegetables and wild fruits

Consumption of small wild animals is wide spread in the four communal areas. However consumption per household has decreased over the years. The households are consuming less of these small animals when compared to the past (Tables: 5A, 6A, 7A and 8A).

The consumption of wild vegetables is mainly restricted nyevhe, derere and mushroom, except for zumbani in Mhondoro-Ngezi (Tables: 5B, 6B, 7B and 8B). Nyevhe, Derere and Mushroom are consumed by most people in the four communal areas. Quantities consumed per household have increased for Mhondoro-Ngezi and decreased for the other three communal lands.

Tables 5C-8C show results on consumption of wild fruits in the four communal areas. Most people consume wild fruits in the four communal areas. However it seems as the quantities consumed by each household has decreased in all the communal areas except in Mhondoro-Ngezi where it has increased when compared to the past.

8.0 Summary and concluding remarks

Most of the households in the four communal areas do not produce enough grain for their consumption which last until the next harvest. Most of the households in Mhondoro-Ngezi and Chiduku have enough money to supplement grain from own production whilst most in Svosve and Buhera do not. Basing on the findings of the survey alone, although most of the farmers in the four communal areas are not grain self-sufficient, farmers in Mhondoro-Ngezi and Chiduku are likely to be grain secure assuming that grain is available in other areas.

References

Rukuni M. et al (1994). Zimbabwe's food insecurity paradox: Hunger amid abundance. In Rukuni M. and Eicher C. (1994) edts. Zimbabwe's Agricultural Revolution. University of Zimbabwe. Harare.

Government of Zimbabwe (1996). **Zimbabwe's food security situation, Policy and Strategy**. Country position paper for FAO World food summit. Rome.

Table 5A: Consumption of small wild animals in Buhera communal lands

Animal	% who consume	Consumption compared to period ago				
		5	10	15	20	30
Mopani worms (madora)	65	3	3	3	3	3
Locusts (mhashu)	78	3	3	3	3	3
Termites (ishwa)	70	3	3	3	3	3
Termites (majuru)	42	4	4	3	3	3
Crickets (makurwe)	80	3	3	3	3	3
Tsambarafuta	46	3	3	3	3	3
Zvidhumbudya	52	3	3	3	3	3
Mandere	24	3	3	3	3	3
Mice (Mbeva)	44	3	3	3	3	3
Hamba	2	5	4	4	3	3
Birds	84	3	3	3	3	3

Table 5B: Consumption of wild vegetables in Buhera

Vegetables	% who consume	Consumption compared to period ago				
		5	10	15	20	30
Nyevhe	95	3	3	3	3	3
Derere	86	4	3	3	3	3
Mushroom	90	3	3	3	3	3
Zumbani	5	4	4	3	3	3
Black jack	5	4	3	3	2	2
Mujakari	0	0	0	0	0	0
Mowa	2	3	4	3	3	3

Table 5C: Consumption of wild fruits in Buhera communal lands

Fruit	% who consume	Consumption compared to years ago				
		5	10	15	20	30
Mazhanje	65	3	3	3	3	2
Masawu	25	4	4	3	3	4
Hacha	50	3	3	3	3	3
Tsabvu	87	3	3	3	3	3
Matamba	83	3	3	3	3	3
Matufu	81	3	3	3	3	3
Matohwe	89	3	3	3	3	3
Nhunguru	79	3	3	3	3	3
Nzviru	76	3	3	3	3	3
Matunduru	42	4	3	3	3	3
Tsenza	34	4	3	2	2	2
Hute	-					
Tsambati	-					
Tsvanzva	-					
Makuyu	-					
Maroro	-					
Tsamvi	-					
Nhengeni	-					

Table 6A: Consumption of small wild animals in Chiduku communal lands.

Animal	% who consume	Consumption compared to period ago 5 10 15 20 30
Mopani worms (madora)	50	3 3 3 3 3
Locusts (mhashu)	70	3 3 4 4 3
Termites (ishwa)	74	3 3 3 3 3
Termites (majuru)	49	3 3 3 3 3
Crickets (makurwe)	66	3 3 3 3 3
Tsambarafuta	22	3 3 4 4 4
Zvidhumbudya	36	3 3 3 4 4
Mandere	37	3 3 3 3 3
Mice (Mbeva)	44	3 3 3 3 3
Hamba	2	5 5 5 5 5
Birds	65	3 3 3 3 3

Table 6B: Consumption of wild vegetables in Chiduku

Vegetables	% who consume	Consumption compared to period ago 5 10 15 20 30
Nyevhe	97	3 3 3 3 3
Derere	97	3 3 3 3 3
Mushroom	81	3 3 3 3 3
Zumbani	6	3 3 3 3 3
Black jack	4	2 2 3 2 2

Table 6C: Consumption of wild fruits in Chiduku communal lands

Fruit	% who consume	Consumption compared to period ago 5 10 15 20 30
Mazhanje	85	3 3 3 3 3
Masawu	17	4 3 4 4 4
Hacha	35	3 3 3 3 3
Tsubvu	75	3 3 3 3 3
Matamba	55	3 3 3 3 4
Matufu	66	3 3 3 3 3
Matohwe	74	3 3 3 3 3
Nhunguru	67	3 3 3 3 3
Nzviru	15	3 4 3 3 4
Matunduru	69	3 3 3 3 4
Tsenza	43	4 3 3 3 3
Hute	-	
Tsambati	-	
Tsvanzva	-	
Makuyu	-	
Maroro	-	
Tsamvi	-	
Nhengeni	-	

Animal	% who consume	Consumption compared to period ago 5 10 15 20 30
Mopani worms (madora)	66	3 3 3 3 3
Locusts (mhashu)	70	3 3 3 3 3
Termites (ishwa)	64	3 3 2 2 2
Termites (majuru)	13	3 3 2 1 1
Crickets (makurwe)	45	3 3 2 2 2
Tsambarafuta	46	3 3 2 2 2
Zvidhumbudya	23	3 3 3 2 2
Mandere	34	3 3 2 2 2
Mice (Mbeva)	62	3 3 2 2 3
Hamba	2	3 3 3 1 1
Birds	74	4 3 4 3 3

Table 7B: Consumption of wild vegetables in Svosve

Vegetables	% who consume	Consumption compared to period ago 5 10 15 20 30
Nyevhe	93	3 3 3 2 3
Derere	82	3 3 2 2 2
Mushroom	85	3 3 3 3 3
Zumbani	20	3 3 3 3 3
Black jack	5	2 3 - - -
Mujakari	1	3 2 4 5 1
Mowa	3	3 3 3 3 3
Mubvunzandadya	1	2 5 1 5 5
Chirevereve	5	2 2 3 2 2
Temwatemwa	1	1 2 - - -

Table 7C: Consumption of wild fruits in Svosve communal lands

Fruit	% who consume	Consumption compared to period ago 5 10 15 20 30
Mazhanje	98	3 3 2 2 2
Masawu	5	4 3 2 3 3
Hacha	33	2 3 3 3 3
Tsubvu	81	3 3 3 2 3
Matamba	74	3 3 3 3 3
Matufu	47	3 3 3 3 4
Matohwe	72	3 3 3 3 3
Nhunguru	66	3 3 3 3 3
Nzviru	81	3 3 3 3 3
Matunduru	69	3 3 3 2 2
Tsenza	53	3 3 3 2 3
Hute	18	3 3 3 2 4
Tsambati	3	4 3 4 3 3
Tsvanzva	3	3 2 2 4 1
Makuyu	2	3 5 3 3 5
Maroro	-	
Tsvamvi	-	
Nhengeni	-	

Table 8A: Consumption of small wild animals in Mhondoro-Ngezi communal lands.

Animal	% who consume	Consumption compared to period ago 5 10 15 20 30
Mopani worms (madora)	91	3 2 2 2 2
Locusts (mhashu)	83	3 3 2 2 2
Termites (ishwa)	80	3 3 3 3 2
Termites (majuru)	67	3 3 3 3 3
Crickets (makurwe)	96	3 3 2 2 2
Tsambarafuta	94	3 2 2 2 2
Zvidhumbudya	57	2 2 2 2 2
Mandere	87	3 3 2 2 2
Mice (Mbeva)	95	2 2 2 2 2
Hamba	50	2 3 2 2 3
Birds	91	2 2 2 3 3

Table 8B: Consumption of wild vegetables in Mhondoro-Ngezi communal lands

Vegetables	% who consume	Consumption compared to period ago 5 10 15 20 30
Nyevhe	94	3 3 2 2 2
Derere	99	3 2 2 2 2
Mushroom	93	3 3 2 2 2
Zumbani	79	3 3 3 3 3
Black jack	33	3 3 3 4 3
Mujakari	33	5 5 5 5 5

Table 8C: Consumption of wild fruits in Mhondoro-Ngezi communal lands

Fruit	% who consume	Consumption compared to period ago 5 10 15 20 30
Mazhanje	99	3 2 2 2 2
Masawu	64	3 3 3 3 3
Hacha	90	2 3 2 2 2
Tsubvu	73	3 3 2 3 3
Matamba	73	3 3 2 2 2
Matufu	87	3 3 2 2 2
Matohwe	95	3 2 2 2 2
Nhunguru	88	3 2 2 2 2
Nzviru	64	3 2 2 2 2
Matunduru	37	3 3 3 3 3
Tsenza	47	3 2 2 2 3
Hute	-	2 3 3 2 3
Tsambati	-	
Tsvanzva	-	
Makuyu	-	
Maroro	-	
Tsamvi	-	
Nhengeni	-	

Table 9A: Average area under maize, output and quantity sold per farmer by year for Chiduku communal lands.

Year	1996	1995	1994	1993	1992	1991	1990	1989
Area(acres	2.6	2.9	2.5	2.4	2.5	2.7	2.5	2.5
Output(kg)	1935.0	1576.0	1358.7	1512.0	629.8	1344.4	1800.7	1525.4
Sold(kg)	1107.3	1040.9	958.5	919.6	705.2	844.1	1000.1	842.5
Sales(Z$)	1023	1062.5	920.0	808.4	547.6	68.3	943.7	730.1

Table 9B: Average area under groundnuts, output and quantity sold per farmer by year for Chiduku communal lands.

Year	1996	1995	1994	1993	1992	1991	1990	1989
Area(acres	1.0	1.0	1.0	1.0	1.1	1.2	1.1	1.1
Output(kg)	545.4	471.9	437.0	395.7	150.3	362.3	426.8	437.4
Sold(kg)	369.3	470.0	397.2	317.8	116.7	237.6	281.5	309.2
Sales(Z$)	609.9	623.7	519.8	497.1	145.7	357.6	410.6	412.2

Table 9C: Average area under Sunflower, output and quantity sold per farmer by year for Chiduku communal lands.

Year	1996	1995	1994	1993	1992	1991	1990	1989
Area(acres	1.2	1.1	1.3	1.0	1.1	1.0	1.1	1.6
Output(kg)	706.2	768.6	384.1	439.6	195.5	412.4	463.0	431.1
Sold(kg)	530.8	730.1	315.4	371.1	202.2	387.7	365.4	373.8
Sales(Z$)	537.8	692.7	397.4	392.0	371.2	342.5	367.0	503.8

Table 9D: Average area under Rapoko, output and quantity sold per farmer by year for Chiduku communal lands.

Year	1996	1995	1994	1993	1992	1991	1990	1989
Area(acres	0.6	0.7	0.6	0.8	1	0.8	0.8	0.8
Output(kg)	226.0	195.0	155.0	180.0	150.0	186.7	426.7	276.7
Sold(kg)	122.0	90.0	145.0	180.0	150.0	255.0	246.7	280.0
Sales(Z$)	206.0	120.0	64.5	204.5	100.0	290.0	290.0	300.0

Table 9E: Average area under roundnuts, output and quantity sold per farmer by year for Chiduku communal lands.

Year	1996	1995	1994	1993	1992	1991	1990	1989
Area(acres	0.4	-	-	-	-	1.0	0.5	0.5
Output(kg)	31.33	-	-	-	-	360	180	270
Sold(kg)	17.0	-	-	-	-	360.0	180.0	180.0
Sales(Z$)	20.0	-	-	-	-	600	350	300

Table 9F: Average area under sorghum, output and quantity sold per farmer by year for Chiduku communal lands.

Year	1996	1995	1994	1993	1992	1991	1990	1989
Area(acres	0.7	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Output(kg)	110.0	270.0	270.0	180.0	-	90.0	180.0	90.0
Sold(kg)	63.3	180.0	180.0	90.0	-	90.0	180.0	90.0
Sales(Z$)	126.7	300.0	300.0	150.0	-	100.0	200.0	180.0

Table 9G: Average area under beans, output and quantity sold per farmer by year for Chiduku communal lands.

Year	1996	1995	1994	1993	1992	1991	1990	1989
Area(acres	0.6	0.7	0.6	0.8	0.8	1.0	1.2	1.3
Output(kg)	148.8	204.3	218.6	284.0	72.0	245.0	229.0	405.0
Sold(kg)	106.4	150.8	194.0	174.0	100.0	217.5	158.8	292.5
Sales(Z$)	252.9	272.5	276.0	253.0	120.0	222.5	155.0	260.0

Table 9H: Average area under soya beans, output and quantity sold per farmer by year for [illegible]

Year	1996	1995	1994	1993	1992	1991	1990	1989
Area(acres	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Output(kg)	350.0	400.0	250.0	275.0	-	-	350.0	810.0
Sold(kg)	250.0	400.0	200.0	225.0	-	-	250.0	360.0
Sales(Z$)	500.0	500.0	400.0	275.0	-	-	300.0	400.0

Table 10: non-marketed crops Chiduku

Year		1996	1995	1994	1993	1992	1991	1990	1989
Millet	Area	1	2.3	1.4	1.3	1.8	1.5	2.0	1.8
	output	210.5	193.8	143.8	140.0	166.7	100.0	108.3	96.7
Pumpkins	Area	3.3	3.8	4.0	4.0	3.6	4.0	4.3	4.6
	output	70.0	87.5	113.6	100.0	-	-	70.0	62.5
Sugarcane	Area	2.9	3.3	3.6	3.5	3.5	3.5	3.8	3.8
	output	225.0	200.0	158.3	187.5	150.0	100.0	73.3	85.0
Cow peas	Area	0.7	0.6	0.8	0.7	0.9	0.7	6.4	0.9
	output	100.8	152.1	160.6	271.8	179.5	162.2	148.3	168.8
Sweet potatoes	Area	0.3	0.3	0.3	0.3	-	-	-	-
	Output	80.0	90.0	90.0	90.0	-	-	-	-

Table 11A: Average area under maize, output and quantity sold per farmer by year for Buhera communal lands.

Year	1996	1995	1994	1993	1992	1991	1990	1989
Area(acres	2.8	2.8	2.7	3.0	2.9	2.7	2.5	2.5
Output(kg)	1445.6	1239.9	1022.7	912.1	235.1	783.3	1074.4	1284.5
Sold(kg)	817.3	659.7	534.9	502.2	-	550.0	623.1	745.3
Sales(Z$)	1113.4	895.3	841.6	519.6	-	517.6	527.9	584.9

Table 11B: Average area under groundnuts, output and quantity sold per farmer by year for Buhera communal lands.

Year	1996	1995	1994	1993	1992	1991	1990	1989
Area(acres	1.5	1.5	1.7	1.5	1.8	1.8	1.8	1.7
Output(kg)	651.6	537.6	478.4	382.1	437.3	512.5	720.3	543.7
Sold(kg)	346.1	348.5	375.5	255.8	-	494.4	699.2	373.3
Sales(Z$)	638.3	510.6	560.3	304.0	-	481.1	375.1	307.8

Table 11C: Average area under Sunflower, output and quantity sold per farmer by year for Buhera communal lands.

Year	1996	1995	1994	1993	1992	1991	1990	1989
Area(acres	1.8	2.0	1.8	1.6	1.6	1.6	1.7	1.5
Output(kg)	543.7	683.0	423.6	325.2	220.7	275.7	396.2	303.6
Sold(kg)	483.6	540.8	398.2	308.1	344.1	334.1	338.5	677.9
Sales(Z$)	677.9	776.6	546.5	604.8	118.8	344.8	418.4	371.7

Table 11D: Average area under Rapoko, output and quantity sold per farmer by year for Buhera communal lands.

Year	1996	1995	1994	1993	1992	1991	1990	1989
Area(acres	1.2	1.0	1.3	1.5	2.0	1.3	1.1	0.1
Output(kg)	1901.7	151.9	178.8	240.0	305.0	100.0	700.0	163.3
Sold(kg)	108.0	90.0	132.1	150.0	150.0	100.0	600.0	150.0
Sales(Z$)	274	174	259.3	222.6	210.5	100.0	380.0	60.0

Table 11E: Average area under roundnuts, output and quantity sold per farmer by year for Buhera communal lands.

Year	1996	1995	1994	1993	1992	1991	1990	1989
Area(acres	0.9	0.8	1.3	0.6	0.5	0.6	0.5	0.5
Output(kg)	281.7	272.5	350.0	216.7	50.0	188.8	200.0	195.0
Sold(kg)	153.6	140.0	125.0	150.0	-	150.0	150.0	150.0
Sales(Z$)	332.0	305.0	200.0	250.0	-	240.0	180.0	150.0

Table 11F: Average area under sorghum, output and quantity sold per farmer by year for Buhera communal lands.

Year	1996	1995	1994	1993	1992	1991	1990	1989
Area(acres	1.8	0.8	0.7	-	2.0	-	-	4.0
Output(kg)	462.9	315.0	153.3	-	180.0	-	-	243.0
Sold(kg)	327.1	225.0	100.0	-	90.0	-	-	135.0
Sales(Z$)	1362.9	255.0	96.7	-	90.0	-	-	120.0

Table 11G: Average area under beans, output and quantity sold per farmer by year for Buhera communal lands.

Year	1996	1995	1994	1993	1992	1991	1990	1989
Area(acres	2.0	2.0	2.0	2.0	2.0	2.0	-	-
Output(kg)	900.0	810.0	360.0	180.0	135.0	45.0	-	-
Sold(kg)	810.0	630.0	270.0	-	-	-	-	-
Sales(Z$)	4600.0	2100.0	180.0	-	-	-	-	-

Table 12: non-marketed crops Buhera

Year		1996	1995	1994	1993	1992	1991	1990	1989
Millet	Area	1.7	1.3	1.2	1.2	1.5	1.0	0.8	1.1
	output	463.4	301.8	242.6	329.2	211.0	551.3	510.0	110.0
Cow peas	Area	0.7	0.6	0.8	0.7	0.9	0.7	6.4	0.9
	output	100.8	152.1	160.6	271.8	179.5	162.2	148.3	168.8
Sweet potatoes	Area	0.3	0.3	0.3	0.3	-	-	-	-
	Output	80.0	90.0	90.0	90.0	-	-	-	-